

| Rule Description - 40 CFR Part 63- National Emission Standards for Hazardous Air Pollutants for Source Categories | Applicable? (Explanation) |
|--|----------------------------------|
| Subpart QQQQ – Friction Products Manufacturing | No – not in source category |
| Subpart RRRRR - Taconite Iron Ore Processing | No – not in source category |
| Subpart SSSSS - Refractory Products Manufacturing | No – not in source category |
| Subpart TTTTT - Primary Magnesium Refining | No – not in source category |

5.6 SPECIFIC APPLICABLE AND INAPPLICABLE REQUIREMENT DISCUSSION

Section 5.6-1 below discusses in more detail the specific applicable and inapplicable requirements for Teton Sales:

5.6.1 40 CFR PART 63 SUBPART QQQQ. NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS: SURFACE COATING OF WOOD BUILDING PRODUCTS.

Background/Applicability

Subpart QQQQ establishes NESHAP for wood building products surface coating sources. The following citations are the criteria for determining applicability:

§63.4681(a), the source category to which this subpart applies is surface coating of wood building products, which means the application of coatings using, for example, roll coaters or curtain coaters in the finish or laminating of any wood building product that contains more than 50 percent by weight wood or wood fiber excluding the weight the weight of any glass components, and is used in the construction, either interior or exterior, of a residential, commercial or institutional building.

§63.4681(b), you are subject to this subpart if you own or operate a new, reconstructed, or existing affected source that uses 1,100 gallons per year or more of coatings in the source category defined in paragraph §63.4681(a) and that is a major source, is located at a major source, or is part of a major source of emissions of hazardous air pollutants (HAP).

For an existing affected source, the initial compliance date is May 28, 2006, and extends through the end of that month plus the next 12 months (40 CFR 63.4740).

Options & Requirements

EPA has designed three options for demonstrating compliance with Subpart QQQQ. Any of the compliance options may be applied to an individual coating operation or to multiple coating operations as a group or to the entire facility. All three compliance options have the same HAP emission limit of 1.93 lb HAP/gal solid. The three compliance options are as follows:

1. Compliant Material Option
2. Emission Rate Without Add-On Controls Option

3. Emission Rate With Add-On Controls Option

Teton Sales has selected the emission rate without add on controls to demonstrate compliance with subpart QQQQ, as discussed below.¹

Compliant Material Option

To demonstrate initial compliance using the compliant material option, Teton Sales must use no coating, thinner or cleaning material with a HAP content that exceeds the applicable emission limit of 1.93 lb HAP/gal solid.

This option is based on the HAP content of each individual coating, thinner and cleaning materials. Existing coatings at Teton Sales can be calculated for HAP content to determine if any, or all, demonstrate compliance with applicable emission limit. Teton Sales would then be able to decide if the coating, thinner or cleaning materials that don't demonstrate compliance will be replaced with coating, thinner or cleaning materials that do comply or that the coating operation materials will be subject to another option.

Emission Rate Without Add-On Controls Option

This option will be selected by Teton Sales.

To demonstrate initial compliance using the emission rate without add-on control option, facility-wide coating operations or group of coating operations of Teton Sales must meet the applicable emission limit of 1.93 lb HAP/gal solid.

This option is a HAP emission rate of Teton Sales' combined coating operation materials averaged over a year. This option can be used in conjunction with the compliant material option, i.e., some material can be compliant material and the remaining material can meet the 1.93 lb HAP/gal over an annual period. Teton Sales is planning to bypass the compliant material option completely because Teton Sales would have to replace less coatings, thinners and cleaning materials to demonstrate compliance.

Emission Rate With Add-On Controls Option

To demonstrate initial compliance using the emission rate with add-on control option, Teton Sales' facility-wide coating operations or group of coating operations must meet the applicable emission limit of 1.93 lb HAP/gal solid and comply with the operating limits and work practice standards of 40 CFR 63.4692 and 40 CFR 63.4693 respectively.

Teton Sales will demonstrate in its BACT analysis that add-on controls are not an option due to the tremendous capital and operating costs. Therefore the emission rate with add-on control option will not be considered in demonstration compliance with Subpart QQQQ.

¹ It should be noted that, in the Tier II application process, Teton Sales may limit the potential to emit and become an area source for HAPs. In that case subpart QQQQ would not apply.

Records and Reporting

Teton Sales must collect and keep records of the data and information specified below for five years.

(a) A copy of each notification and report that you submitted to comply with this subpart, and the documentation supporting each notification and report.

(b) A current copy of information provided by materials suppliers or manufacturers, such as manufacturer's formulation data, or test data used to determine the mass fraction of organic HAP and density for each coating, thinner, and cleaning material and the volume fraction of coating solids for each coating. If you conducted testing to determine mass fraction of organic HAP, density, or volume fraction of coating solids, you must keep a copy of the complete test report. If you use information provided to you by the manufacturer or supplier of the material that was based on testing, you must keep the summary sheet of results provided to you by the manufacturer or supplier. You are not required to obtain the test report or other supporting documentation from the manufacturer or supplier.

(c) For each compliance period, Teton Sales must keep the records specified below.

(1) A record of the coating operations at which you used each compliance option and the time periods (beginning and ending dates and times) you used each option.

(2) For the emission rate without add-on controls option, a record of the calculation of the total mass of organic HAP emissions for the coatings, thinners, and cleaning materials used each month, using Equations 1, 1A through 1C, and 2; and, if applicable, the calculation used to determine mass of organic HAP in waste materials according to 40 CFR 63.4751(e)(4); the calculation of the total volume of coating solids used each month, using Equation 2 of 40 CFR 63.4751; and the calculation of each 12-month organic HAP emission rate, using Equation 3 of 40 CFR 63.4751.

Compliance Requirements

Teton Sales must comply with subpart QQQQ as discussed below:

Calculate the mass of organic HAP emissions. The mass of organic HAP emissions is the combined mass of organic HAP contained in all coatings, thinners, and cleaning materials used during each month minus the organic HAP in certain waste materials calculated using Equation 1.

$$H_e = A + B + C - R_w \quad (\text{Eq. 1})$$

Where:

H_e = Total mass of organic HAP emissions during the month, gram

A = Total mass of organic HAP in the coatings used during the month, grams

B = Total mass of organic HAP in the thinners used during the month, grams.

C = Total mass of organic HAP in the cleaning materials used during the month

Rw = Total mass of organic HAP in waste materials sent or designated for shipment to a hazardous waste TSDF for treatment or disposal during the month, grams

(1) Calculate the mass of organic HAP in the coatings used during the month, Equation 1A:

$$A = \sum_{i=1}^m (\text{Vol}_{c,i}) (D_{c,i}) (W_{c,i}) \quad (\text{Eq. 1A})$$

Where:

A = Total mass of organic HAP in the coatings used during the month, grams.

Vol_{c,i} = Total volume of coating, i, used during the month, liters.

D_{c,i} = Density of coating, i, grams coating per liter coating.

W_{c,i} = Mass fraction of organic HAP in coating i, grams organic HAP per gram coating.

m = Number of different coatings used during the month.

(2) Calculate the mass of organic HAP in the thinners used during the month, using Equation 1B of this section:

$$B = \sum_{j=1}^n (\text{Vol}_{t,j}) (D_{t,j}) (W_{t,j}) \quad (\text{Eq. 1B})$$

Where:

B = Total mass of organic HAP in the thinners used during the month, grams.

Vol_{t,j} = Total volume of thinner, j, used during the month, liters.

D_{t,j} = Density of thinner, j, grams per liter.

W_{t,j} = Mass fraction of organic HAP in thinner, j, grams organic HAP per gram thinner.

n = Number of different thinners used during the month.

(3) Calculate the mass of organic HAP in the cleaning materials used during the month using Equation 1C:

$$C = \sum_{k=1}^p (\text{Vol}_{s,k}) (D_{s,k}) (W_{s,k}) \quad (\text{Eq. 1C})$$

Where:

C = Total mass of organic HAP in the cleaning materials used during the month, grams.

Vol_{s,k} = Total volume of cleaning material, k, used during the month, liters.

D_{s,k} = Density of cleaning material, k, grams per liter.

$W_{s,k}$ = Mass fraction of organic HAP in cleaning material, k, grams organic HAP per gram material.

p = Number of different cleaning materials used during the month.

(4) If you choose to account for the mass of organic HAP contained in waste materials sent or designated for shipment to a hazardous waste TSDF in Equation 1 of this section, then you must determine it according to paragraphs (4)(i) through (iv) of this section.

- (i) You may include in the determination only waste materials that are generated by coating operations for which you use Equation 1 of this section and that will be treated or disposed of by a facility regulated as a TSDF under 40 CFR part 262, 264, 265, or 266. The TSDF may be either off-site or on-site. You may not include organic HAP contained in wastewater.
- (ii) You must determine either the amount of the waste materials sent to a TSDF during the month or the amount collected and stored during the month and designated for future transport to a TSDF. Do not include in your determination any waste materials sent to a TSDF during a month if you have already included them in the amount collected and stored during that month or a previous month.
- (iii) Determine the total mass of organic HAP contained in the waste materials specified in paragraph (e)(4)(ii) of this section.
- (iv) You may use any reasonable methodology to determine the amount of waste materials and the total mass of organic HAP they contain, and you must document your methodology as required in §63.4730(h). To the extent that waste manifests include this information, they may be used as part of the documentation of the amount of waste materials and mass of organic HAP contained in them.

Calculate the total volume of coating solids used. Determine the total volume of coating solids used which is the combined volume of coating solids for all the coatings used during each month, using Equation 2 of this section:

$$V_s = \sum_{i=1}^m (Vol_{c,i}) (V_{s,i}) \quad (\text{Eq. 2})$$

Where:

V_{st} = Total volume of coating solids used during the month, liters.

$Vol_{c,i}$ = Total volume of coating, i, used during the month, liters.

$V_{s,i}$ = Volume fraction of coating solids for coating, i, liter solids per liter coating, determined according to §63.4741(b).

m = Number of coatings used during the month.

Calculate the organic HAP emission rate. Calculate the organic HAP emission rate for the 12-month compliance period, grams organic HAP per liter coating solids used, using Equation 3 of this section.

$$H_{yr} = \frac{\sum_{y=1}^{12} H_e}{\sum_{y=1}^{12} V_{st}} \quad (\text{Eq. 3})$$

Where:

H_{yr} = Organic HAP emission rate for the 12-month compliance period, grams organic HAP per liter coating solids.

H_e = Total mass of organic HAP emissions, from all materials used during month, y, as calculated by Equation 1 of this section.

V_{st} = Total volume of coating solids used during month, y, liter, as calculated by Equation 2 of this section.

Y = Identifier for months.

Compliance demonstration. The organic HAP emission rate for the initial 12-month compliance period, calculated using Equation 3 of this section, must be less than or equal to the applicable emission limit in 40 CFR 63.4690. You must keep all records as required by 49 CFR 63.4730 and 63.4731. As part of the Notification of Compliance Status required by 40 CFR 63.4710, you must identify the coating operation(s) for which you used the emission rate without add-on controls option and submit a statement that the coating operation(s) was (were) in compliance with the emission limitations during the initial compliance period because the organic HAP emission rate was less than or equal to the applicable emission limit in 40 CFR 63.4690, determined according to this section.

Low-VOC/HAP Coating Technologies Alternatives

EPA's Research and Design Report

Below is a list of possible coatings alternatives that Teton Sales may apply to their operations to aid in the compliance of Subpart QQQQ. The information was taken from EPA's Research and Design report; Case Studies: Low-VOC/HAP Wood Furniture Coatings, May 2000. The wood furniture industry was subject to the same type of NESHAP in the mid to late 1990s as is Teton Sales is subject to now. After the compliance period of the wood furniture coatings NESHAP ended, EPA assigned an independent company to research the technologies utilized to comply with the NESHAP standards. The following coatings alternatives along with their advantages were reported:

- High Solids Coating
 - Higher Solids, Better Coverage
 - Lower VOC/HAP content than traditional coatings
 - Low capital cost to change
 - Little or no equipment changes necessary
 - Easy operation transition

- Waterborne Coating
 - Higher solids, better coverage
 - Low VOC/HAP content
 - Lower fire risks, no in-house storage requirements
 - Hard finish
 - Low capital cost to change
 - Can clean equipment with water
 - Less toxics coatings, no smell
- UV Cured Coatings
 - Very high solids, little or no solvent
 - Low or no VOC/HAP content
 - Very durable finish
 - Cures in seconds – no dry time
 - Automated line (labor savings)
- Powder Coatings
 - 100 percent solids – no solvent
 - Very little VOC/HAP content
 - Recycle overspray
 - Very durable finish, only one coat necessary
 - Automated line
 - Short cure time
 - Easy-to-clean equipment

Coatings Guide

The Coatings Guide is designed to provide suggestions for alternate low-emitting coating technologies that will accommodate Teton Sales' current coating process. The goal of the Guide is to provide general information on viable coating alternatives. The Coatings Guide was developed by the Pollution Prevention Program at Research Triangle Institute in cooperation with the U.S.EPA Office of Research and Development, The National Risk Management Research Laboratory's Air Pollution Prevention and Control Division.

The following are the possible coating alternatives for Teton Sales' operations:

- Waterborne Coatings
 - Latex acrylic epoxies
 - Latex acrylics
 - Latex alkyd acrylics
 - Latex styrene acrylics
 - Waterborne polyurethane dispersions
- Powder Coatings
 - Powder acrylics
 - Powder fluorocarbons

- Powder polyurethanes
- Other Coatings
 - 100% solids (plastisols)
 - Electrocoat
 - UV curable liquids

The following are the possible application equipment alternatives for Teton Sales' operations:

- Non-spray Techniques
 - Dip coating
 - Flow coating
 - Dip-spin coating
 - Roll coating (direct and reverse)
- Spray Techniques
 - Conventional air atomization
 - Airless atomization
 - Air-assisted airless atomization
 - High volume, low pressure air-atomization spray
 - Flame spray coating
- Electrostatics Techniques
 - Electrostatic spray
 - Rotary atomization
 - Fluidized bed

5.6.2 40 CFR PART 64 COMPLIANCE ASSURANCE MONITORING (CAM)

40 CFR 64 establishes applicability to pollutant-specific emissions units at a major source that is required to obtain a part 70 or 71 permit. The following citations are the criteria for determining applicability:

40 CFR 64.2(a)(1): The unit is subject to an emission limitation or standard for the applicable regulated air pollutant (or surrogate thereof), other than an emission standard or limitation that is exempt under paragraph (b)(1) of the rule.

40 CFR 64.2(a)(2): The unit uses a control device to achieve compliance with any such emission limitation or standard; and

40 CFR 64.2(a)(3): The unit has potential pre-control device emissions of the applicable regulated air pollutant that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source. For purposes of this paragraph, "potential pre-control device emissions" shall have the same meaning as "potential to emit," as defined in 40 CFR 64.1, except that emission reductions achieved by the applicable control device shall not be taken into account.

Teton Sales is not exempt from any of the emission standards and has a unit that uses a control device to achieve compliance with an emission standard. The spray booth has pre-control emissions greater than 100 tons per year as shown in the Table 5.6-1 below:

Table 5.6-1 CAM applicability

Door Coating Line Controlled PM Emissions

| Emission Source | Product | Max. Application Rate (gal/hr) | Density of Mixture (lb/gal) ^b | Wt. Fraction Solids (lb PM/lb Mixture) ^b | Transfer Efficiency (%) | Control Efficiency (%) | PM Emissions (lb/hr) | PM Emissions (T/yr) ^a |
|-------------------------------|---|--------------------------------|--|---|-------------------------|------------------------|----------------------|----------------------------------|
| Door Coating Line Spray Booth | White Water-Based Enamel (Product No. 660-20W020-472) | 18 | 10.66 | 0.4774 | 50 | 99 | 0.46 | 1.51 |

^aBased on 6,600 hr/yr.

^bFrom MSDS/RCR

Door Coating Line Uncontrolled PM Emissions

| Emission Source | Product | Max. Application Rate (gal/hr) | Density of Mixture (lb/gal) | Wt. Fraction Solids (lb PM/lb Mixture) | Transfer Efficiency (%) | PM Emissions (lb/hr) | PM Emissions (T/yr) ^d |
|-------------------------------|---|--------------------------------|-----------------------------|--|-------------------------|----------------------|----------------------------------|
| Door Coating Line Spray Booth | White Water-Based Enamel (Product No. 660-20W020-472) | 18 | 10.66 | 0.4774 | 50 | 45.80 | 200.61 |

^dBased on 8,760 hr/yr.

The CAM rule is applicable to the door coating line spray booth so a CAM plan must be developed.

5.6.3 COMPLIANCE ASSURANCE MONITORING PLAN

I. Background

A. Emission Unit

Description: Door Coating Operations
Identification: Spray Booth
Facility: Teton Sales Co.

B. Applicable Regulations, Emission Limits, and Monitoring Requirements

Applicable Permits: Tier I Operating Permit 027-00067

Emission Limits:

Particulate Matter (PM) a. Opacity no more than 20% for no more than three minutes in any 60-minute period.

Monitoring Requirements: Particulate matter filters must maintain a minimum capture efficiency of 99%.

C. Control Technology

The door-coating spray booth is equipped with a Chemco paint arrestor pad filtration system.

II. Monitoring Approach

The key elements of the monitoring approach are presented below.

A. Indicator

Pressure drop across the filtration system will be used as an indicator.

B. Measurement Approach

The filtration system pressure differential is measured using a Dwyer Mark II Molded Plastic Manometer.

C. Indicator Range

The indicator range is a pressure drop between -0.05 and 1.02 inches of water.

D. Performance Criteria

Data Representativeness:

The manometer continuously measures the air pressure and has +/- 3% accuracy up to 10 psi and up to 140°F.

Verification of Operational Status:

The filtration system will be visually inspected prior to spray booth operation and the turning on of the exhaust fan. Once the exhaust fan is turned on, the manometer pressure readings will be observed and recorded.

QA/ QC Practices and Criteria:

The monometer is calibrated per manufacturer's recommendations.

Monitoring Frequency and Data Collection Procedure:

The manometer will be observed every 30 minutes during the operation. If the pressure drop is outside of the range of the clean to loaded filter pressure drop range, or within 0.02 inch water of the maximum value of the pressure drop range, then the operation will be shut down and the filter will be replaced.

III. Justification

A. Background

Unpainted doors are conveyed on hangers via a suspended, continuous overhead track. The doors are sprayed with paint in the spray booth before being dried in a heated drying oven. The pollutant-specific emission unit (PSEU) is the spray booth itself which uses a Chemco paint arrestor pad filtration system to reduce PM emissions from paint overspray. The arrestor pad filtration system has 99% paint removal efficiency. A Dwyer Mark II Molded Plastic Manometer measures the filtration system pressure differential.

B. Rationale for Selection of Performance Indicator

To ensure compliance with the minimum capture efficiency of 99%, the filter system pressure differential must be between -0.05 and 1.02 inches of water. This optimum pressure drop helps to ensure the filter is working properly and is most efficient. When the exhaust fan is turned on and once every 30 minutes during operation, the monometer is observed. If the pressure drop is outside the range of clean to loaded filter pressure drop, or within 0.02 inch of the of the maximum value of the pressure drop range, then the filter will be shut down and the filter will be replaced.

C. Rationale, Plan, and Schedule for Selection of Indicator Range

The indicator range for the filtration system is based on the manufacturer's design and operating guidelines. The selected pressure drop range was chosen to ensure the minimum capture efficiency of 99% is maintained. A permit deviation occurs when opacity is more than 20% for more than three minutes in any 60-minute period. If the exhaust emissions exceed this rate a permit deviation occurs and is documented.